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Integration Options for Mercosul – An Investigation Using the AMIDA Model

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INTEGRATION OPTIONS FOR MERCOSUL – An Investigation

Using the AMIDA Model *

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1. Introduction.

The pace of the Doha negotiations and the events that took place in the past two years in the external front of Mercosul announce that the second half of this century's first decade will witness a revival of regional initiatives. The WTO Round will probably deliver a package of resolutions that, though always important, are more likely to set key targets for future liberalisations, beyond modest advances in the main trade areas. This will inevitably trigger a new push for regional agreements to complement, or answer, quests that were on the table in Geneva. For the Southern Cone, it is nearly a certainty that both negotiations that have been put aside, the free trade areas (FTAs) with, respectively, the EU25 and the whole Western Hemisphere, will resume. The latter has already suffered many changes, and may even take place in a direct agreement with the US.

But not only former discussions will re-emerge. There is at present significant activity in South America – tied with recent and challenging political developments – leading, through more than one route, to a closer integration of the Southern sub-continent. At the same time, the US, while keeping its face in the Free Trade Area of the Americas (FTAA), has signed several agreements with Central and South American groups of countries that, in a way or other, will change the direction of many trade flows. In fact, in the case of South American countries, there is a sort of subdued competition between it and Mercosul, to see which side will attract more partners, and gain first the commercial chunks lying in third groups like the Andean Community (AC). Additional complexity is provided by the increasing role of China, and the Asian continent in general, in the world trade flows, affecting not only the major Northern blocs – EU25 and NAFTA – but Mercosul as well, especially Brazil and Argentina.

All this calls for a re-evaluation of exercises performed some time ago, together with the introduction of new scenarios. In this paper, we use a brand new static CGE model, AMIDA – Analysing Mercosul's Integration Decisions and Agreements, to help in shedding light on this diversity of options and opportunities.

The AMIDA – Analysing Mercosur's Integration Decisions and Agreements model[1], in its present, first version, though containing two service sectors for closing the structure of the economy, is more suitable for the analysis of *market access for goods*. Refinements and improvements, as a better, modern treatment of services, are planned, in order to encompass other important issues, part of most agreements at stake. Though it uses perhaps the best available data set on Mercosul's world trade flows and barriers – a most crucial point for these exercises –, continuous updating and use of more accurate information is also in view.

The structure of the paper is the following. Section 2 contains a few lines on methodological aspects related to the model, discussing also data sources and decisions. Section 3 presents the sectoral aggregation, the regions and the scenarios. Six FTAs have been the object of this study. Results are presented and commented upon in section 4, while section 5 tries to use them to make a first assessment of Mercosul's potentialities and shortcomings. Section 6 concludes. Conclusions deal with more technical aspects as well as those describing the main policy guidelines that can be extracted from the work.

2. Brief description of the model and data.

2.1. Basic facts.

The model basic lines follow those in Flôres (1997, 2003), being a static, computable general equilibrium (CGE) model in which strategic interaction takes place in certain sectors. This means that, contrary to the common practice of introducing *ad hoc* "scale gains" in an otherwise perfect competition CGE[2], perfect and (explicitly) imperfect competition sectors interact in the model. This approach was fashioned in Gasiorek, Smith and Venables (1992) – drawing on a

[1] AMIDA, infinite light, is also a great Buddha who, in our bodies, occupies the mouth. The authors hope the model to be a voice that will help Mercosur in choosing the best agreements.
[2] For a discussion of this topic, and of the (usually) accompanying "dynamic elasticities" device, see, among others, Flôres (2000).

pioneer partial equilibrium structure by Smith and Venables (1988) -, who used it to evaluate the impacts of the *Europe 92* Delors's initiative.

In general, due to the scale effects – enhanced in the larger markets created by the regional integrations -, welfare gains are higher than those produced by the perfect competition alternatives[3]. However, in all FTAs examined here, like the FTAA or the EU25-Mercosul cases, country markets remain *segmented* as what is at stake is the creation of free-trade areas and *not* a common market. This means that the model solutions, for the imperfect competition sectors, keep the segmented markets approach. The results, as discussed in section 4, seem promising and point to patterns and effects unable to be unveiled by other techniques.

Another important issue is that, beyond tariffs, Flôres (1997, 2003) and Gasiorek, Smith and Venables (1992) assumed the existence of additional trade costs which can be associated to a variety of factors, impairing or raising the cost of trade between two countries, like transportation, bureaucracy, distribution costs, etc. Integration zeroes the tariffs and reduces, without necessarily eliminating, these latter costs. We estimated gross transport margins with the aid of COMTRADE, minimising discrepancies with official statistics. In most bilateral flows they amount to less than 10 per cent, though there are significant differences at the sectoral level, due to inconsistencies and misreporting. We reduced them between the partners, in each scenario, by 4 percentage points, at most, as trade facilitation. No evaluation was made of other trade costs. This does not mean that such improvement is not worth pursuing in further simulations.

From the theoretical side, handling the two kinds of competition in a single general equilibrium framework poses theoretical problems related to the existence and uniqueness of solutions, fully discussed, for instance, in Chapter 11 of Ginsburgh and Keyzer (1997). In our particular case, the specifications used

[3] See, for instance, Baldwin and Venables (1995) and Flôres (1996).

guarantee the existence of a unique solution, and we shall not mention this question hereafter.

Flôres and Watanuki (2005) provide a detailed description of the model equations, carefully discussing their role and pros and cons. Calibration and data issues are also addressed in detail. We shall, in the remaining of this section, briefly outline some key points.

Firms in imperfect competition sectors are symmetric and play a Cournot-Nash strategy in each market/region, a key parameter being the perceived elasticity of demand in region *i*, for product *j*, manufactured in region *i'*, *e(i',i; j)*, which is defined as:

$$1/e(i',i;\, j) = 1/\sigma(i;j) + (1 - 1/\sigma(i;j))\, s(i',i;\, j)$$

where $\sigma(i;j)$ is the elasticity of substitution, in region *i*, between goods *j* from different origins and *s(i',i; j)* is region's *i'* market share for product *j*, in region *i*.

Introducing imperfect competition in the way done here allows for the computation of both *short* and *long run* solutions. In the former, the number of (identical) firms in each imperfect competition sector is kept constant, so that profits can be different from zero in these sectors. In the latter, profits are imposed to be zero, and the number of firms is adjusted to satisfy this condition.

The structure of the model allows it to portray distinct levels of regional integration in a progressive scenario evaluation. It contains both standard and innovative features, as the ones below[4]:

i) in the demand side there is a representative consumer with a Dixit-Stiglitz-Spence CES utility function in an Armington-like tree structure;

ii) in the production side, perfect competition sectors have Cobb-Douglas technologies;

iii) intermediate inputs are treated via a shortcut using the input-output (I-O) coefficients;

[4] See, as mentioned before, Flôres and Watanuki (2005) for complete details.

iv) wages are flexible, as labour is assumed mobile among sectors, but the (sector specific) capital remuneration rates are kept constant;

v) there is no money in the model;

vi) in equilibrium, different closures ("equilibrium" and "disequilibrium" ones) can be applied;

vii) calibration is, in these models, much more delicate. A new strategy, accommodating polynomial cost structures depicting the scale economies effect in the imperfect competition sectors, added more flexibility to this key operation.

Finally, the whole model is run in an easy, GAMS-like programming language

2.2. The data set.

An outstanding Western Hemisphere Database, combining information from the UN, Eurostat, OECD, TRAINS, US Trade Representative, CEPAL, the World Bank, national statistical institutes and central banks, GTAP's latest database and the IDB was produced.

In order to have a minimum compatibility among the different sources, the base year for all data refers to 2001, which was adapted to the regions and particular features of the model. We consider this a fairly ideal decision, as 2002 and 2003 were not very representative years for Brazil and, especially, Argentina, and much information for 2004 was still unavailable.

Production and demand structures received careful attention in the case of Mercosul. A key element relates to the I-O matrices for Brazil and Argentina, which feature in rather old versions in GTAP. The 1996 and 2000 versions, respectively, were updated and inserted instead. Also, Armington elasticities came from special sources for these two countries. Capital remuneration rates were improved whenever possible.

The US, Mexican, AC, Japanese, Chinese and EU economic data were reasonably checked.

Information on the complete protection structure is always debatable, even if one sticks to the case of tariffs. Preferential tariffs – specially those originating from trade agreements –, usually poorly depicted, had to be thoroughly reviewed in cases like Mercosul. Given the importance of the other two key regions in the model, the US and the EU, improvements on their protection structure were made with the aid of data from the United States International Trade Commission – USITC website and EUROSTAT and Messerlin (2001), respectively.

Data from INTAL/ALADI and recent studies conducted by IPEA in Brazil were also useful complementary sources. At the level of detail of the present study, many nuances and, sometimes, important tariff peaks either disappear or are smoothed out when aggregated to produce a single figure for the sector. Nevertheless, the fact that the protection structure was computed bottom-up, easily allows to translate any detailed (8-digits) concession/restriction to the aggregation level of the model.

3. Sectors, Regions and Scenarios.

3.1. Sectors and regions.

We aimed at an as comprehensive as possible world regionalisation and sectoral disaggregation. The economies were decomposed into twenty-five sectors distributed along six groups, namely[5]:

I. (Classical) Agriculture:

- Wheat, corn and other grains (Grains)
- Vegetables & fruits
- Oil seeds & soybeans
- Sugar
- Coffee, rice & other crops (Coffee, rice & others)
- Animal products

[5] For the sectors, names between brackets are as they appear in the tables, in sections 4 and 5.

II. Agribusiness (ab):

- Bovine meat #
- Poultry meat #
- Dairy products
- Beverages & tobaccos (Bev. & tobacco) #
- Vegetable oils

III. Energy:

- Minerals
- Energy products

IV. Light Manufactures:

- Textiles & apparel (Text. & apparel)
- Leather, wood & paper (Leather, wood, paper)
- Other light manufactures (Other light manufac.)

V. Heavy Manufactures:

- Chemical and plastic products (Chemicals & plastics)
- Ferrous metals
- Non-ferrous metals
- Motor vehicles #
- Other transport equipment (Other transp. equip.) #
- Electric equipment
- Machinery

VI. Services:

- Utilities & construction
- Trade and services.

The first five groups comprise the 23 trade-in-goods sectors which will be the main focus of our analyses. Five out of them – those marked with an '#' above – were modelled under imperfect competition. These structures are better portrayed in the model regions related to the Mercosul countries, the US, Japan and the EU25 (see below).

Decisions on the regions must face one of the most classical dilemmas in CGE practice: due attention to the areas of concern (and those which affect them) together with care in not fragmenting too much the model, what, among other practical problems, may add distortions to its construction and operation. Given the interest in analysing several different scenarios from a Mercosul perspective, we divided the world into the following ten regions:

0. Mercosul[6]
1. Mexico
2. the United States
3. the Andean Community (Bolivia, Colombia, Ecuador, Peru and Venezuela)
4. the Rest of the Americas (or Western Hemisphere) – RoWH (comprising the remaining 23 potential FTAA countries)
5. the EU25 countries
6. Japan
7. China
8. the Asian 10 emerging economies (Asia10)
9. the Rest of the World - RoW.

As regards the quality of the data adaptation to these regions, the best ones seem to be, as mentioned, those for Mercosul, Mexico, the AC, the US, the EU25 and Japan. The Rest of the Western Hemisphere is naturally a simplification, though it includes, beyond the whole Central America, countries like Canada and Chile. Equilibrium flows to the Rest of the World may also be obtained by difference and econometric techniques. In this last region, are found countries that may be relevant for certain sectors, like Australia and New Zealand, or India. All the (former) New Tigers – Hong Kong, Korea, Singapore and Taiwan -, beyond six new emerging Asian economies, like Indonesia, Malaysia or

[6] From this region, individual country results, if desired, can be extracted (see Flôres and Watanuki (2005), section 2.7). We shall not pursue this in the present paper.

Vietnam, which are becoming competitive either in specific agricultural goods or in traditional sectors like textiles, are in Asia10.

Exhibit I shows, for Mercosul, the values of the trade flows, for the twenty-three merchandise sectors, plus the services group. It is an essential tool for understanding the scope of the model and the true meaning of the results discussed in the next section.

Exhibit I: Mercosul: Trade flows – imports and exports, 2001 -, by regions (10^6 US$).

I.A: Exports (fob) [cont.]

SECTORS	REGIONS				
	1	2	3	4	5
Grains	19,0	3,0	191,6	155,5	301,4
Vegetables & fruits	210,7	2,7	18,2	54,7	797,0
Oilseeds & soybeans	26,1	44,4	116,4	52,6	2.312,9
Sugar	105,6		6,0	107,7	24,4
Coffee, rice & others	464,6	37,6	47,0	112,9	1.441,3
Animal products	838,0	53,0	207,5	271,7	1.976,7
Bovine meat (ab)	39,5	2,6	14,7	215,7	547,8
Poultry meat (ab)	186,7		5,3	18,9	828,8
Dairy products (ab)	33,9	94,7	55,0	29,9	0,5
Bev. & tobacco (ab)	62,0	9,8	15,6	36,9	91,2
Vegetable oils (ab)	39,0	1,3	256,6	221,6	3.653,7
Minerals	556,7	72,9	87,4	228,2	1.857,8
Energy products	639,1	1,4	61,0	2.104,2	226,9
Text. & apparel	357,0	49,8	158,8	152,6	329,2
Leather, wood, paper	3.306,2	188,2	215,3	512,3	2.438,9
Other light manufac.	115,9	11,4	27,1	24,7	48,8
Chemicals & plastics	1.033,9	204,6	745,4	732,6	954,0
Ferrous metals	1.382,3	154,9	303,6	275,8	695,5
Non-ferrous metals	861,4	70,7	134,5	206,7	837,7

Motor vehicles	1.356,0	1.142,6	593,8	445,0	931,1
Other transp. equip.	2.430,4	9,7	25,1	44,1	707,2
Electric equipment	1.417,6	104,7	131,3	136,9	213,9
Machinery	1.387,2	283,2	578,3	519,3	793,2
(Services)	2.166,4	139,5	85,5	515,4	5.839,4
TOTAL	19.035,4	2.682,9	4.081,0	7.175,7	27.849,2

I.A: Exports (fob) [end]

SECTORS	REGIONS				TOTAL
	6	7	8	9	
Grains	134,6	2,5	207,1	1.112,2	2.127,0
Vegetables & fruits	1,4		10,2	88,7	1.183,6
Oilseeds & soybeans	171,3	1.496,7	286,5	308,6	4.815,4
Sugar	0,2	25,1	106,1	1.639,2	2.014,3
Coffee, rice & others	194,0	88,3	84,4	423,1	2.893,1
Animal products	299,2	56,3	179,6	526,6	4.408,7
Bovine meat (ab)	7,4	1,0	103,1	324,1	1.255,9
Poultry meat (ab)	177,8	6,2	206,5	731,1	2.161,2
Dairy products (ab)	1,9		4,4	40,2	260,6
Bev. & tobacco (ab)	43,9	0,4	9,6	28,6	298,0
Vegetable oils (ab)	31,1	21,5	638,9	2.285,3	7.149,0
Minerals	716,9	668,4	336,0	668,2	5.192,4
Energy products		27,3		168,8	3.228,6
Text. & apparel	40,6	126,2	17,8	66,2	1.298,2
Leather, wood, paper	240,3	387,0	580,2	371,1	8.239,6
Other light manufac.	16,6	1,4	7,8	20,7	274,4
Chemicals & plastics	107,4	78,4	159,3	357,4	4.373,2
Ferrous metals	113,2	116,3	429,8	385,5	3.857,1
Non-ferrous metals	385,3	24,3	52,5	379,7	2.952,8
Motor vehicles	9,3	130,0	31,7	332,4	4.972,0
Other transp. equip.	0,8	60,9	18,9	256,1	3.553,2
Electric equipment	19,1	25,6	40,2	36,0	2.125,2

Machinery	36,6	101,9	94,6	354,6	4.148,9
(Services)	837,2	205,6	1.552,5	2.159,8	13.501,3
TOTAL	3.586,0	3.651,3	5.157,9	13.064,5	86.283,8

I.B: Imports (cif) [cont.]

SECTORS	REGIONS				
	1	2	3	4	5
Grains	17,6		0,1	15,0	0,2
Vegetables & fruits	9,7	3,3	79,1	114,5	32,5
Oilseeds & soybeans	1,8	0,7	0,1	2,0	1,1
Sugar					
Coffee, rice & others	38,4	0,7	13,3	13,6	48,7
Animal products	224,2	29,5	110,9	180,1	310,5
Bovine meat (ab)	4,9			2,3	3,7
Poultry meat (ab)	3,5		0,6	8,2	21,0
Dairy products (ab)	11,0	0,2		4,2	41,1
Bev. & tobacco (ab)	26,4	5,0	1,2	60,5	272,3
Vegetable oils (ab)	8,6	0,1	2,4	0,2	81,9
Minerals	166,9	21,1	105,3	298,6	381,5
Energy products	337,8		773,5	100,3	79,4
Text. & apparel	163,7	32,5	31,3	60,5	357,7
Leather, wood, paper	446,7	14,6	40,9	464,3	894,7
Other light manufac.	109,8	4,9	6,8	15,5	177,8
Chemicals & plastics	4.950,9	470,2	252,1	485,1	5.389,5
Ferrous metals	105,3	13,4	5,9	20,2	438,1
Non-ferrous metals	545,4	16,2	172,3	423,3	964,1
Motor vehicles	537,4	232,8	9,8	69,6	2.516,1
Other transp. equip.	2.075,4	0,7		92,1	951,9
Electric equipment	3.633,5	200,3	0,7	254,0	1.784,6
Machinery	5.211,3	147,8	58,3	292,8	7.367,9
(Services)	4.129,2	209,0	98,8	1.002,9	9.650,2
TOTAL	22.759,3	1.403,1	1.763,2	3.979,9	31.766,5

I.B: Imports (cif) [end]

SECTORS	REGIONS				TOTAL
	6	7	8	9	
Grains				0,7	33,4
Vegetables & fruits		10,5	3,3	28,2	281,2
Oilseeds & soybeans		0,1		1,1	6,9
Sugar					
Coffee, rice & others	4,5	4,6	27,7	68,6	219,9
Animal products	5,8	21,4	53,2	257,3	1.192,9
Bovine meat (ab)			0,3	2,8	14,0
Poultry meat (ab)	0,2			0,4	33,8
Dairy products (ab)				21,0	77,5
Bev. & tobacco (ab)	0,4	0,1	0,8	42,7	409,3
Vegetable oils (ab)	0,1		33,4	11,8	138,4
Minerals	47,8	54,8	38,6	143,0	1.257,5
Energy products	42,6	185,6	27,4	2.399,6	3.946,1
Text. & apparel	18,4	302,7	597,2	368,0	1.932,0
Leather, wood, paper	23,6	177,0	149,3	117,4	2.328,5
Other light manufac.	33,6	295,7	100,5	37,2	781,9
Chemicals & plastics	532,5	550,4	805,6	2.582,7	16.018,9
Ferrous metals	68,6	23,0	59,4	186,5	920,4
Non-ferrous metals	143,8	117,0	111,5	263,0	2.756,6
Motor vehicles	847,5	8,2	301,7	307,7	4.830,8
Other transp. equip.	135,3	87,5	70,2	90,5	3.503,7
Electric equipment	807,1	644,8	2.110,5	735,9	10.171,5
Machinery	1.496,2	830,6	1.053,0	1.156,7	17.614,5
(Services)	699,7	297,4	2.614,2	2.948,1	21.649,5
TOTAL	4.907,6	3.611,4	8.157,8	11.770,8	90.119,6

3.2. The scenarios.

We tried to run a diversified set of scenarios to produce a global idea on the different options nowadays on the table for Mercosul. The main ones are,

naturally, the FTAs with, respectively, the US and the EU. Both can be contrasted to the FTAA initiative – in its original form – as well as to a set of alternatives, comprising different international positions Mercosul may assume. Moreover, they should also be confronted with possible outcomes from the present WTO Doha Round, what hasn't been done in this paper[7].

Five scenarios, which will be called *basic*, have then been defined. These basic options may be translated into manifold ways as well as combined in multiple forms. A sixth scenario, involving a FTA with China is also considered. Out of the wide spectrum of possible combinations, the following will be discussed here:

Scenario A. The first main scenario, in which Mercosul closes a full FTA agreement with the US.
Scenario B. The second main one, with the EU25-Mercosul FTA fully implemented.
Scenario C. This is a first "diversion", with Mercosul signing a FTA with Mexico.
Scenario D. A second diversion, Mercosul now closing a FTA with the Andean Community, something that is already a reality on paper.
Scenario E. The classical implementation of the FTAA, meaning that all tariffs, for all sectors, among all the regions comprising the American continent in the model are zeroed.
Scenario F. This scenario includes a different option, analysing the impact of Mercosul's free trade with China.

Of course, it is also desirable to evaluate the impact of not-so-perfect FTA's, something that will be pursued later, following lines in Flôres (2003). At present, supposing full FTAs are implemented in all cases allows a clearer cross evaluation of them.

[7] The main reason for this absence is that, even after the December 2005 Hong Kong Ministerial, the format of the final agreement remains quite open.

4. Results.

Tables 1 to 14 are a selection of the most interesting results, they concentrate initially on the impacts in the trade flows. All deserve careful analysis and will be briefly discussed below. It is worth reminding – specially given the previous remarks on the database and the aggregate level of the study – that all the figures should be basically evaluated in relation to each other, within and between tables, *and not taken separately, as a precise single value for the changes.* The importance of this section is to identify areas or situations – or rather sectors and scenarios – where things can go better *or* worse. Detailed quantification of profits or losses should be made at a greater level of detail, ultimately with the aid of partial equilibrium models[8].

Table 1 describes the changes in trade flows under the two main scenarios. Four out of the five highest increases for exports, in the EU25 scenario (B), are in commodities (2) and agribusiness (2) sectors, the other being textiles & apparel. In the US case, two heavy manufactures sectors appear, beyond one in the agribusiness – thanks largely to orange juice - and two traditional ones, textiles (again) included.

In a rough overall picture, the EU25 FTA seems to favour demand for more traditional Mercosul's exports, while the US one promotes some higher value-added exports. The very protectionist European CAP - Common Agricultural Policy shows itself indirectly in the significant increases in bovine and poultry meat; US figures in the agribusiness sectors being more modest. However, the EU25 remains competitive in this area and, either due to this, or to compensate the demand surge in the EU, or both, Mercosul's imports changes of agricultural commodities and agribusiness are, but for two exceptions (grains and bovine meat), considerably higher in the EU25 FTA. Indeed, this is also valid for

[8] Given all the methodological caveats already mentioned, we decided not to translate the results into monetary values, something that could easily be misleading.

most of the remaining sectors, only exceptions being other transport equipment and electric equipment.

At the bottom of the Table, the value of the correlation coefficients between each two corresponding vectors is displayed (not including services). Given the very high increase in bovine meat exports in Scenario B, the coefficients, for exports, were computed with and without this sector. There is no (linear) relation between the two exports patterns, while the imports ones show a certain degree of common behaviour.

Nearly all these contrasting results may be partially explained by the more open, in relative terms, US protectionist structure.

Table 1: Mercosul's FTAs with the US and the EU25: Total trade flows changes (long run results; exports and imports) under scenarios A and B.

Sectors	Scenario A		Scenario B	
	Exports	Imports	Exports	Imports
Grains	1.09	66.74	11.86	59.48
Vegetables & fruits	3.70	5.69	28.67	46.25
Oil seeds & soybeans	0.39	34.03	-5.26	62.06
Sugar	6.01	-	7.59	-
Coffee, rice & others	7.95	35.52	41.61	135.55
Animal products	7.81	33.57	40.98	123.91
Bovine meat (ab)	3.76	34.42	269.02	25.99
Poultry meat (ab)	4.36	6.70	81.55	60.92
Dairy products (ab)	13.02	32.65	0.33	114.67
Bev. & tobacco (ab)	25.71	10.67	10.23	118.95
Vegetable oils (ab)	0.70	13.62	24.32	198.44
Minerals	5.89	12.87	14.03	33.53
Energy products	2.04	0.80	-0.08	5.72
Text. & apparel	25.09	14.44	42.36	31.80

Leather, wood, paper	20.87	12.00	23.30	23.88
Other light manufac.	6.21	42.02	9.34	62.56
Chemicals & plastics	15.08	7.89	12.37	8.44
Ferrous metals	13.52	7.63	15.75	26.12
Non-ferrous metals	12.83	9.38	24.88	15.86
Motor vehicles	19.11	22.27	9.95	100.34
Other transp. equip.	26.05	41.32	4.42	25.21
Electric equipment	20.73	5.61	8.91	3.71
Machinery	16.35	11.61	18.26	15.76
(Services)	0.97	-1.10	-2.67	3.29
TOTAL	9.51	9.09	19.42	18.57

Correlation between the two patterns: i) Exports, -0.08 (without bovine meat), -0.21 (with bovine meat); ii) Imports, 0.27 .

Tables 2 and 3 deepen the insight, showing the regional distribution of the increases, according to the five groups of sectors[9]. Both regional agreements present limited territorial externalities, with however certain nuances. The US one seems to cause some efficiency gains in light and heavy manufactures sectors, where Mercosul is able to increase exports to other areas in the world. In the latter group, sensible increases take place in the three Asiatic regions, the EU25 and the RoW. Nevertheless, the imports pattern is largely dominated by very high penetration of the US flows, with, but for agricultural sectors, decreases in the demand elsewhere. Though these are usually negligible, for the two manufactures groups figures become again more significant, particularly for heavy manufactures, exactly in the same five regions already mentioned. Very clearly, the agreement will provoke trade deviation, in these sectors, from Asia and the EU25 to US suppliers. A similar pattern, reasonably significant, also takes place with the energy group.

[9] They can be complemented by tables showing the same information at the sector level. These, and many other, more detailed tables, can be obtained from the authors.

Increases in exports to the partner are usually more modest in scenario A than in B. This very often also corresponds to lower absolute values. Manufacturing groups IV and V sell, to the US, under scenario A, extra values of 1.98 bn US$ and 3.30 bn US$, respectively, while the much higher European percentages under scenario B amount to 2.83 bn US$ and 3.55 bn US$, respectively: a sizeable difference in the first case.

Table 2: Mercosul's FTA with the US (Scenario A): Trade flows changes (long run results) by Regions and Groups of Sectors.

2A. Exports.

Regions	Sector Groups				
	I	II	III	IV	V
US	56.92	60.67	21.24	52.44	33.39
Mexico	-1.67	0.50	0.62	0.57	7.16
Andean	-0.26	0.48	1.00	1.04	5.27
RoWH	-0.51	0.85	0.42	0.75	6.35
EU25	-1.64	0.71	2.18	1.32	8.96
Japan	-1.57	1.46	2.36	1.89	8.96
China	-0.93	1.01	2.46	2.39	10.77
Asia10	-0.57	0.88	2.33	1.00	7.81
RoW	-0.30	0.79	2.27	1.89	9.20

2B. Imports.

Regions	Sector Groups				
	I	II	III	IV	V
US	175.50	192.49	54.44	141.28	64.45
Mexico	-0.56	-1.73	-2.74	-3.17	-9.06
Andean	0.39	-1.34	-1.58	-2.28	-7.55
RoWH	0.01	-1.76	-2.39	-0.95	-9.37

EU25	0.31	-1.59	-2.43	-2.23	-12.01
Japan	2.94	-1.69	-1.41	-5.21	-12.09
China	0.67	-1.30	-1.73	-5.06	-10.94
Asia10	2.02	-1.12	-1.54	-3.59	-9.26
RoW	0.90	-1.57	-1.52	-3.16	-9.20

Key to the groups [(number of sectors)]: I – agriculture (6), II – agribusiness (5), III – energy (2), IV – light manufactures (3), V – heavy manufactures (7).

Table 3: Mercosul's FTA with the EU25 (Scenario B): Trade flows changes (long run results) by Regions and Groups of Sectors.

3A. Exports.

Regions	Sector Groups				
	I	II	III	IV	V
US	-17.08	-6.49	-3.51	-4.05	-2.09
Mexico	-18.51	-2.75	-3.15	-2.84	-2.39
Andean	-21.89	-8.28	-5.45	-0.96	1.02
RoWH	-17.26	-5.71	-2.15	-3.05	1.52
EU25	79.72	144.99	54.04	100.41	69.21
Japan	-26.65	-5.72	-11.30	-7.99	3.36
China	-17.32	-16.08	-11.35	-8.14	3.75
Asia10	-21.28	-11.20	-11.89	-7.79	3.46
RoW	-17.19	-8.89	-11.71	-7.68	2.40

3B. Imports.

Regions	Sector Groups				
	I	II	III	IV	V
US	57.04	10.19	5.02	0.28	-9.82
Mexico	51.61	8.11	4.38	-0.34	-7.38
Andean	43.52	16.76	5.08	0.16	-6.89
RoWH	44.76	6.66	4.52	1.51	-8.04

EU25	312.61	201.38	86.58	117.17	73.11
Japan	66.33	9.35	2.18	-2.11	-10.72
China	49.09	8.21	5.12	-2.04	-8.97
Asia10	62.53	26.85	2.51	-0.78	-6.89
RoW	58.03	10.22	5.49	-0.41	-7.73

Key to the groups [(number of sectors)]: I – agriculture (6), II – agribusiness (5), III – energy (2), IV – light manufactures (3), V – heavy manufactures (7).

It is interesting to notice that the EU25 FTA pattern is nearly opposite to the one depicted in Table 2. The considerable rise in exports to the EU takes place at the expense of generalised decreases in all other regions, for every sector but heavy manufactures in the Asian and RoW regions, plus the AC and the RoWH. Imports, however, increase almost everywhere, exceptions being the Asian regions and Mexico in light manufactures, and all destinations in heavy manufactures, where – as happened in the US FTA - there is a clear trade deviation in favour of the partner's exports.

The combination of all results till now suggests a few things. First, both FTAs with a Northern bloc will enhance Mercosul's competitiveness in heavy manufactures, very likely at the cost of inducing a considerable (though needed) readjustment in this group of sectors. Second, while Scenario A transforms the US into the major Mercosul supplier, in spite of probably also turning the Southern Cone into a more competitive bloc, Scenario B strongly channels Mercosul exports to the EU, in such a way that it is impelled to demand more goods from all other regions. Clearly, this signals to the more distorting EU protection structure, but also warns on the higher US dependency the sole completion of Scenario A may entail.

The US Scenario A has two deviations and one deepening, the FTAA itself. Table 4 shows the changes in the flows, by sectors groups, for Scenarios C and D. The figures are more modest, though in the case of Mexico the increases in manufactures exports (light and heavy) are somewhat higher. The Andean

Community, on the other hand, shows its competitiveness in agriculture and energy, where the highest changes in Mercosul's imports take place.

Table 4: Mercosul's FTAs with Mexico and the Andean Community: Total trade flows changes (long run results; exports and imports) under scenarios C and D.

Sectors Groups	Scenario C		Scenario D	
	Exports	Imports	Exports	Imports
Agriculture	0.36	5.02	2.72	16.02
Agribusiness	1.72	3.07	1.73	3.14
Energy	-0.04	1.31	0.96	4.64
Light Manufactures	2.62	2.93	1.51	3.20
Heavy Manufactures	6.69	2.82	4.45	1.61
(Services)	-0.89	1.06	-1.13	1.37
TOTAL	2.47	2.36	2.20	2.11

Table 5 gives a better, more detailed view of the dynamics of these South-South integrations by displaying, for the four key regions, the sectoral changes in the Andean Community FTA. The agreement causes deviation of Mercosul exports in all other regions, though in general low; the highest one being, uniformly, in the grains sector[10]. It dramatically unlocks Mercosul exports of sugar, animal and dairy products, but the increases are significant for all sectors: electric equipment, with 29.51 is the lowest one.

Contrasting imports and exports, evidences of intra-industry trade between the two blocs emerge – at the aggregation level of the model –, in the areas of beverages & tobacco, machinery, textiles & apparel, other light manufactures and motor vehicles, among others. These last two sectors account for the highest percentage increases in Andean exports to Mercosul. Indeed, they, together with poultry meat, appear as a bit of a surprise. Combining them with the figures for

coffe, rice & other crops, animal products, vegetable oils and electric machinery, there is an interesting evidence on the complementarities between the two blocs.

Of course, the Community becomes a main supplier of energy products to Mercosul, negative though very small decreases taking place in all other regions. The same applies, now again somewhat unexpectedly, with vegetables and fruits. Apart from this, the FTA does not impact much the other regions' exports. Finally, the effects on the US and the EU25 are strikingly similar, as synthesised by the two correlation coefficients.

Table 5: Mercosul's FTA with the Andean Community: Total trade flows changes (long run results; exports and imports), by the four main regions, under scenario D.

5A. Exports.

SECTORS	US	Mexico	Andean Com.	EU25
Grains	-6.24	-3.39	93.95	-7.75
Vegetables & fruits	0.61	0.42	94.11	0.85
Oil seeds & soybeans	-1.50	-1.31	55.83	-1.22
Sugar	-0.94	-	216.24	-1.52
Coffee, rice & others	-1.08	-1.09	112.01	-1.40
Animal products	-1.40	-1.63	236.17	-3.09
Bovine meat (ab)	-2.02	-1.25	134.36	-1.35
Poultry meat (ab)	-1.92	0.00	109.05	-1.86
Dairy products (ab)	-1.06	-1.18	208.28	-2.84
Bev. & tobacco (ab)	-1.13	-0.89	110.64	-1.12
Vegetable oils (ab)	-2.21	-1.42	77.28	-1.43
Minerals	-0.49	-0.27	100.47	-0.89
Energy products	-0.04	-0.08	62.59	-0.25
Text. & apparel	-1.20	-0.80	121.99	-2.74

[10] This pattern also repeats itself in the other (five) regions not shown.

Leather, wood, paper	-1.24	-1.01	44.83	-2.29
Other light manufac.	-0.10	-0.38	105.26	-1.78
Chemicals & plastics	-1.75	-0.93	39.23	-1.72
Ferrous metals	-1.56	-1.18	40.80	-3.47
Non-ferrous metals	-0.99	-0.65	46.76	-2.26
Motor vehicles	-0.37	-1.09	92.93	-0.89
Other transp. equip.	-1.31	-1.48	135.58	-1.54
Electric equipment	-1.03	-0.88	29.51	-2.03
Machinery	-0.92	-1.43	72.64	-2.74
(Services)	-1.23	-1.10	-2.89	-1.09
TOTAL	-1.11	-1.08	76.93	-1.93

Correlation between the US and EU25 patterns (Exports), 0.84 .

5B. Imports.

SECTORS	US	Mexico	Andean Com.	EU25
Grains	10.48	-	136.54	9.46
Vegetables & fruits	-2.37	-2.38	83.05	-2.43
Oil seeds & soybeans	3.37	3.61	170.06	2.58
Sugar	-	-	-	-
Coffee, rice & others	1.66	1.56	114.01	1.49
Animal products	2.98	3.01	146.95	2.88
Bovine meat (ab)	1.83	0.00	0.00	1.80
Poultry meat (ab)	1.97	0.00	70.22	1.95
Dairy products (ab)	3.65	3.59	0.00	3.58
Bev. & tobacco (ab)	1.52	1.53	182.32	1.48
Vegetable oils (ab)	3.30	3.38	204.06	2.87
Minerals	0.21	0.23	87.28	0.17
Energy products	-0.46	-	21.15	-0.55
Text. & apparel	173	1.74	180.89	1.70
Leather, wood, paper	0.70	0.71	52.07	0.69
Other light manufac.	1.92	1.94	299.15	1.89

Chemicals & plastics	0.75	0.76	41.77	0.73
Ferrous metals	1.45	1.48	69.24	1.43
Non-ferrous metals	0.61	0.62	65.25	0.60
Motor vehicles	0.31	0.34	304.48	0.29
Other transp. equip.	2.87	2.90	0.00	2.82
Electric equipment	0.66	0.66	34.76	0.66
Machinery	1.48	1.49	109.73	1.45
(Services)	1.38	1.39	2.87	1.36
TOTAL	1.22	0.92	52.39	1.16

Correlation between the US and EU25 patterns (Imports), 1.00 .

The FTAA, Scenario E, provides the integrated picture for scenarios A, C and D, the US presence being responsible for a few non-linearities. Table 6 gives a detailed picture of the total flows changes, for Mercosul. The two last rows show the difference between these figures and the corresponding ones for Scenario A, shown in Table 1; they reveal that the effects of Scenario A are thoroughly enhanced.

Exports increases are usually superior in the full FTAA case, while imports ones always. For exports, *dairy products*, *motor vehicles*, *beverages & tobacco*, and *textiles & apparel*, in this order, present the greatest changes - sectors where Mercosul, but perhaps for *motor vehicles*, clearly has an advantage *vis à vis* more competitive blocs/economies. Notwithstanding, increases are also positive in all remaining trade-in-goods sectors.

The pattern is somehow reverted in the imports flows, which increase substantially in the agricultural group. However here percentage values can be misleading. A 117.80 per cent rise in grains amounts to 39.3 m US$, while one of 15.45 per cent in machinery to 2.7 bn US$!

Tables 7 and 9 have formats similar, respectively, to Tables 2 and 5, and allow for a closer examination of impacts. As expected, the FTAA induces Mercosul ‘coming closer’ to its Western Hemisphere (WH) partners. Though the

impact outside the hemisphere is somewhat negligible in the case of exports (Japan even showing no decrease), for imports the changes are both uniform and remarkable (notwithstanding increases in groups I and II). Table 8 adds a further insight on this, by comparing the total flow changes for the four scenarios dealing with WH integrations. From it, we see that the FTAA is as distorting – with respect to regions outside the agreement – as the Mercosul-US FTA, though, in the latter, Mercosul still increases its exports to all other regions. Overall, the FTAA is roughly as beneficial to Mexico and the AC – in terms of their trade relations with Mercosul – as the individual scenarios C and D. It is undoubtedly a competitive choice within the realm of these four agreements.

Table 6: The FTAA: Total trade flows changes (long run results; exports and imports) under scenario E, and differences E - A.

Sectors	Scenario E		Scenario E – Scenario A	
	Exports	Imports	Exports	Imports
Grains	3.27	117.80	2.18	51.06
Vegetables & fruits	9.49	60.05	6.29	54.36
Oil seeds & soybeans	0.23	87.97	-0.16	53.94
Sugar	7.44	-	1.43	-
Coffee, rice & others	9.44	55.67	1.49	20.15
Animal products	20.62	81.32	12.81	47.75
Bovine meat (ab)	14.12	51.78	10.36	17.36
Poultry meat (ab)	10.37	23.53	6.01	16.83
Dairy products (ab)	132.73	57.09	119.71	24.44
Bev. & tobacco (ab)	45.45	37.90	19.74	27.23
Vegetable oils (ab)	2.22	23.48	1.52	9.86
Minerals	10.56	40.72	4.67	27.85
Energy products	12.70	8.01	10.66	7.21
Text. & apparel	44.86	27.59	19.77	13.15

Leather, wood, paper	25.50	24.80	4.63	12.80
Other light manufac.	20.50	56.40	14.29	14.38
Chemicals & plastics	27.65	11.67	12.57	3.78
Ferrous metals	17.76	13.69	4.24	6.06
Non-ferrous metals	16.84	22.41	4.01	13.03
Motor vehicles	51.98	37.03	32.87	14.76
Other transp. equip.	25.59	50.51	-0.46	9.19
Electric equipment	28.02	7.60	7.29	1.99
Machinery	33.30	15.45	16.95	3.84
(Services)	-1.21	1.50	-2.18	2.60
TOTAL	16.18	15.45	6.67	6.36

Table 7: The FTAA (Scenario E): Trade flows changes (long run results) by Regions and Groups of Sectors.

7A. Exports.

Regions	Sector Groups					Total
	I	II	III	IV	V	
US	52.85	56.67	20.43	49.01	30.59	36.75
Mexico	118.19	200.92	112.50	163.88	116.40	124.65
Andean	106.44	89.79	94.40	75.29	43.01	61.54
RoWH	51.67	81.03	17.06	44.82	42.88	38.03
EU25	-4.01	-1.26	1.76	-2.82	5.18	-0.53
Japan	-3.67	-0.42	2.56	-2.88	4.49	0.34
China	-3.44	-2.17	2.60	-2.67	5.78	-0.66
Asia10	-2.97	-1.38	2.38	-3.11	2.22	-0.88
RoW	-3.60	-1.08	1.38	-2.51	5.28	-0.67

7B. Imports.

Regions	Sector Groups	Total

	I	II	III	IV	V	
US	184.93	206.15	55.50	144.49	65.35	70.43
Mexico	210.90	231.57	115.74	202.07	105.18	113.18
Andean	136.61	223.08	28.47	131.36	56.91	55.59
RoWH	117.96	139.40	69.30	70.62	57.65	70.23
EU25	3.46	1.29	-3.60	-1.26	-11.69	-10.33
Japan	6.88	0.47	-2.44	-3.79	-12.07	-11.66
China	1.66	0.53	-0.23	3.68	10.16	-7.79
Asia10	5.47	2.72	-2.64	-2.35	-8.77	-7.43
RoW	4.01	2.29	0.69	-2.02	-8.75	-5.02

Key to the groups [(number of sectors)]: I – agriculture (6), II – agribusiness (5), III – energy (2), IV – light manufactures (3), V – heavy manufactures (7).

Table 8: Total trade flows changes (long run results), by Regions, for the four Western Hemisphere scenarios.

REGIONS	EXPORTS				IMPORTS			
	Scenarios				Scenarios			
	A	C	D	E	A	C	D	E
US	39.70	-1.06	-1.10	36.75	69.26	0.54	1.19	70.43
Mexico	5.55	119.58	-1.08	124.65	-8.42	138.96	0.83	113.18
Andean	3.46	-0.81	78.64	61.54	-3.16	0.66	55.33	55.59
RoWH	2.48	-0.72	-0.92	38.03	-5.69	0.65	0.87	70.23
EU25	2.12	-1.24	-1.77	-0.53	-10.76	0.19	1.07	-10.33
Japan	2.69	-1.67	-2.21	0.34	-11.70	-0.12	0.97	-11.66
China	2.09	-1.26	-1.93	-0.66	-8.77	0.57	1.07	-7.79
Asia10	2.27	-1.52	-2.32	-0.88	-8.08	0.26	1.00	-7.43
RoW	2.16	-1.09	-1.97	-0.67	-6.16	0.42	0.60	-5.02

The additional insight provided by Table 9 refers to the market losses caused by the FTAA. Taking, for instance, Mercosur's exports to the AC,

comparison with Table 5 shows they usually lose market share, especially in the case of the nine manufactures, either light or heavy, sectors; indeed, with the exceptions of *textiles & apparel* (actually an increase) and *non-ferrous metals* (nearly constant), the losses are significant. Similarly, for EU25 imports, the table shows a uniformly greater market loss in all manufactures sectors, with the exception of *ferrous metals*.

Table 9: The FTAA: Total trade flows changes (long run results; exports and imports), by the four main regions, under scenario E.

9A. Exports.

SECTORS	US	Mexico	Andean Com.	EU25
Grains	38,76	401,71	16,11	-5,20
Vegetables & fruits	27,21	128,89	95,39	1,62
Oil seeds & soybeans	187,37	37,25	41,94	-2,15
Sugar	101,94	-	220,63	-4,09
Coffee, rice & others	74,15	115,61	131,48	-9,39
Animal products	37,43	171,34	218,03	-4,35
Bovine meat (ab)	75,85	461,25	130,09	-0,39
Poultry meat (ab)	29,73	0,00	103,83	0,09
Dairy products (ab)	89,98	186,29	202,35	-5,56
Bev. & tobacco (ab)	114,22	277,37	112,92	-1,06
Vegetable oils (ab)	45,76	167,57	61,66	-1,71
Minerals	36,64	114,03	102,58	2,34
Energy products	6,32	32,18	82,68	-3,03
Text. & apparel	78,19	95,98	120,70	0,80
Leather, wood, paper	47,37	185,85	40,55	-3,47
Other light manufac.	5,71	97,69	85,22	5,27
Chemicals & plastics	41,66	99,62	34,22	4,81
Ferrous metals	28,14	103,33	35,89	-2,96

Non-ferrous metals	23,26	114,72	45,06	5,11
Motor vehicles	45,49	102,22	66,02	6,81
Other transp. equip.	32,40	361,28	98,09	2,30
Electric equipment	24,25	158,49	15,53	6,82
Machinery	18,08	169,35	37,84	13,05
(Services)	-0,89	-1,07	-5,28	-1,36
TOTAL	32,47	118,11	60,14	-0,70

9B. Imports.

SECTORS	US	Mexico	Andean Com.	EU25
Grains	120,10		301,14	6,22
Vegetables & fruits	118,52	134,33	81,99	-6,07
Oil seeds & soybeans	137,37	162,12	224,22	4,23
Sugar				
Coffee, rice & others	183,96	225,30	121,76	10,44
Animal products	193,44	220,28	177,15	3,36
Bovine meat (ab)	107,64	0,00	0,00	0,91
Poultry meat (ab)	87,14	0,00	76,94	-1,22
Dairy products (ab)	276,22	426,20	0,00	7,02
Bev. & tobacco (ab)	195,97	220,68	197,72	0,14
Vegetable oils (ab)	251,80	308,65	275,00	2,90
Minerals	109,75	115,74	87,37	-4,55
Energy products	28,69		20,45	0,94
Text. & apparel	211,24	227,52	184,53	-2,13
Leather, wood, paper	64,87	71,60	57,16	0,36
Other light manufac.	368,88	422,67	331,51	-7,64
Chemicals & plastics	40,51	43,48	38,08	-6,01
Ferrous metals	85,01	96,95	74,40	0,74
Non-ferrous metals	71,03	76,69	57,29	-6,08
Motor vehicles	277,67	307,65	234,80	-15,15

Other transp. equip.	90,43	245,32	0,00	-20,18
Electric equipment	26,56	26,97	31,10	-4,96
Machinery	83,12	91,66	105,97	-16,67
(Services)	1,15	1,47	5,12	1,61
TOTAL	57,86	96,54	52,76	-6,70

The flows analysis is completed by looking at the Mercosul-China FTA. Table 10 displays the regional changes it induces, by sector groups, while Table 11 gives a more detailed information on the total and Chinese flows.

Comparing Table 10 with Table 3, we see that, qualitatively, the Mercosul-China FTA induces a pattern similar to the one generated by the Mercosul-EU25 FTA. The difference, in exports, lies in group V, where Mercosul exports now suffer a deviation in Asian and RoW regions, being not affected in the remaining of the globe. In the case of imports, all regions, as regards group IV, are now affected; deviations in group V are, however, more modest.

Table 10: The Mercosul-China FTA (Scenario F): Trade flows changes (long run results) by Regions and Groups of Sectors.

10A. Exports.

Regions	Sector Groups					Total
	I	II	III	IV	V	
US	-1.43	-1.06	-0.19	-0.83	0.93	0.18
Mexico	-1.49	-0.54	-0.10	-0.53	1.57	1.06
Andean	-1.09	-0.60	-0.54	-0.01	0.40	0.02
RoWH	-1.21	-0.72	-0.26	-0.56	0.22	-0.27
EU25	-1.75	-0.66	-0.81	-1.64	0.20	-0.94
Japan	-2.07	-1.23	-0.80	-1.50	-1.48	-1.45

China	31.20	117.26	10.29	311.57	490.03	141.13
Asia10	-1.54	-0.85	-0.75	-1.90	-1.30	-1.29
RoW	-1.71	-0.73	-0.97	-1.49	-0.05	-1.02

10B. Imports.

Regions	Sector Groups					Total
	I	II	III	IV	V	
US	2.32	1.35	0.44	-2.75	-0.86	-0.84
Mexico	1.81	1.45	-0.05	-2.75	-1.41	-1.34
Andean	1.31	1.15	0.63	-2.03	-0.15	-0.37
RoWH	1.29	1.48	0.22	-0.44	-0.49	-0.14
EU25	2.28	1.39	0.20	-2.29	-1.51	-1.40
Japan	3.95	1.43	0.06	-7.40	-1.97	-2.01
China	196.71	339.17	35.77	286.55	103.92	142.74
Asia10	3.35	0.99	0.05	-3.21	-1.18	-1.40
RoW	2.66	1.47	0.73	-2.50	-0.76	-0.27

Key to the groups [(number of sectors)]: I – agriculture (6), II – agribusiness (5), III – energy (2), IV – light manufactures (3), V – heavy manufactures (7).

Table 11 shows that, in general, though the figures for the China flows are usually high to very high, the impact in the total flows is small. Even so, it is funny to see that many indications of contraction appear for total exports. Definitely, China is an interesting partner whose role will evolve.

Table 11: The Mercosul-China FTA: Total and Chinese trade flows changes (long run results; exports and imports) under scenario F.

Sectors	Total flows		Mercosul-China flows	
	Exports	Imports	Exports	Imports
Grains	-0,46	0,63	10,46	-
Vegetables & fruits	-0,01	5,56	-	154,81

Oil seeds & soybeans	-0,05	1,73	0,40	88,76
Sugar	3,23	8,80	427,89	-
Coffee, rice & others	3,61	6,09	264,23	140,81
Animal products	2,29	0,63	308,42	229,70
Bovine meat (ab)	-0,67	1,39	514,65	0,00
Poultry meat (ab)	-0,94	1,41	122,58	0,00
Dairy products (ab)	-0,82	1,61	0,00	0,00
Bev. & tobacco (ab)	-0,84	1,58	192,63	339,17
Vegetable oils (ab)	-0,18	0,91	95,92	0,00
Minerals	0,72	5,73	9,99	130,07
Energy products	-0,26	1,08	17,68	7,91
Text. & apparel	83,24	42,45	863,32	281,98
Leather, wood, paper	4,73	5,80	129,30	72,66
Other light manufac.	9,92	148,71	970,99	419,25
Chemicals & plastics	2,20	2,00	158,52	52,93
Ferrous metals	1,10	3,94	87,85	100,15
Non-ferrous metals	0,28	4,54	165,61	95,67
Motor vehicles	43,81	-3,47	1.551,86	462,18
Other transp. equip.	3,05	12,58	110,77	411,27
Electric equipment	3,27	1,62	233,41	35,33
Machinery	6,19	4,50	218,07	156,30
(Services)	-1,12	1,40	-1,64	1,62
TOTAL	5,04	4,84	133,09	131,12

Correlation between the two patterns: i) Exports, 0.62 (without motor vehicles), 0.69 (with motor vehicles); ii) Imports, 0.46 .

Changes in trade flows have no clear, unidirectional relation with what happens to output and, most importantly, welfare – the ultimate goal of any CGE evaluation. Synthetic information on all the scenarios is obtained from Tables 12 to 14, showing, respectively, the changes in labour, output and welfare.

Reminding that labour is reallocated in each scenario, keeping its total constant, the two first tables show that, in general, changes induced by the six scenarios are not very drastic. As expected, the directions of change are the same, in both tables.

The Mercosul-EU25 agreement induces a more worrying contraction on the heavy manufacturing sectors *motor vehicles*, *other transport equipment* and *machinery*, what, for the two last ones, also happens with the US or FTAA agreements, though with less intensity. This might be due to the impact of the major unleashing of agribusiness exports to the EU, what might be distorting somewhat the results. Moreover, given the more traditional sides of the European economy, maybe there is less scope for Mercosul manufactures in that market.

The FTAA reduces output in the *other light manufactures*, *chemicals & plastics*, *non-ferrous metals* and, especially, in *other transport equipment* and *machinery* sectors. The most notable increase takes place in *motor vehicles*. Part of these results goes against those obtained in Flôres (2003) for Brazil, where the FTAA slightly decreased 'cars' output (-0.4), while increasing 'other vehicles' (+2.1). Beyond the aggregation level (Brazil x Mercosul), the different base years (1997, in Flôres (2003)) must be at play here.

Table 12: Total labour changes (long run results; percentage from base values), for all scenarios.

SECTORS	Base Labour*	Scenarios					
		A	B	C	D	E	F
Wheat, Corn and Other Grains	1.045,0	0,26	4,41	0,01	0,88	0,66	-0,22
Vegetables and Fruits	745,0	0,54	3,08	-0,12	-0,52	-0,81	-0,28
Oil seeds and Soybeans	1.350,0	0,52	2,08	-0,15	0,09	0,47	-0,20
Sugar	695,1	3,33	3,66	-0,40	-0,32	3,97	1,51
Coffee, Rice and Other Crops	1.228,2	1,13	5,51	0,03	-0,04	1,02	0,49
Animal Products	5.788,4	0,19	4,51	-0,03	0,21	0,44	0,05
Bovine Meat	425,0	0,71	24,87	0,09	-0,13	1,83	-0,02
Poultry Meat	141,8	2,02	28,16	-0,40	-0,92	4,23	-0,48

Dairy Products	509,6	0,45	-0,86	2,68	1,40	4,52	0,05
Beverages and Tobaccos	506,0	0,43	-4,39	0,13	0,05	0,13	-0,04
Vegetable Oils	323,1	0,69	24,14	-0,59	1,26	1,87	-0,35
Minerals	1.131,0	0,39	0,77	-0,09	-0,21	-0,22	-0,18
Energy Products	366,0	0,56	0,10	-0,36	-1,03	1,05	-0,46
Textiles and Apparel	965,0	1,16	0,04	-0,26	0,75	1,51	2,78
Leather, Wood and Paper	2.321,4	5,70	4,96	0,66	-0,35	5,95	0,82
Other Light Manufactures	791,0	-3,21	-4,82	-0,06	0,12	-3,50	-11,84
Chemical and Plastic Products	1.885,0	-2,46	-4,22	-0,20	0,31	-2,33	-0,21
Ferrous metals	387,0	4,74	-1,44	1,03	0,49	6,44	1,28
Non-ferrous Metals	1.057,5	-1,40	-3,19	0,19	-0,39	-2,56	-0,06
Motor Vehicles	625,8	1,62	-15,06	2,50	2,81	8,11	13,09
Other Transport Equipment	645,8	-3,89	-13,83	0,01	0,20	-4,27	2,70
Electric Equipment	304,4	2,96	1,63	1,58	0,39	5,15	0,43
Machinery	1.354,1	-8,76	-10,12	0,78	1,17	-6,99	-1,79
Utilities and Construction	4.773,7	-2,75	-0,81	0,45	0,80	-1,64	0,48
Trade and Services	61.106,0	0,16	-0,43	-0,12	-0,16	-0,10	-0,10
Total	90.470,9	0,00	0,00	0,00	0,00	0,00	0,00

* in 1.000 workers

Table 13: Total output changes (long run results; percentage from base values), for all scenarios.

SECTORS	Base Values*	Scenarios					
		A	B	C	D	E	F
Grains	7,9	0,11	2,50	0,01	0,57	0,34	-0,13
Vegetables and Fruits	5,3	0,28	1,65	-0,08	-0,31	-0,60	-0,17
Oilseeds & Soybeans	12,5	0,24	0,90	-0,08	0,06	0,18	-0,10
Sugar	9,6	1,54	1,28	-0,20	-0,13	1,79	0,78
Coffee, Rice & Others	12,4	0,47	2,19	0,02	-0,01	0,40	0,23
Animal Products	63,6	0,08	2,12	-0,01	0,11	0,20	0,03
Bovine Meat	16,8	0,61	20,63	0,08	-0,11	1,54	-0,01
Poultry Meat	7,0	1,67	23,06	-0,32	-0,77	3,48	-0,39
Dairy Products	16,3	0,10	-0,88	1,28	0,70	1,97	0,04
Bever. and Tobaccos	13,0	0,37	-4,28	0,11	0,04	0,04	-0,04

Vegetable Oils	15,1	0,26	8,56	-0,22	0,47	0,70	-0,13
Minerals	25,8	0,21	0,39	-0,05	-0,12	-0,15	-0,10
Energy Products	35,5	-0,03	-1,60	-0,22	-0,55	0,07	-0,23
Textiles & Apparel	26,2	0,64	0,02	-0,14	0,41	0,82	1,52
Leather, Wood, Paper	45,2	3,81	3,31	0,44	-0,24	3,97	0,55
Other Light Manufac.	15,8	-1,80	-2,71	-0,03	0,07	-1,96	-6,74
Chemical & Plastics	60,0	-1,14	-1,96	-0,09	0,14	-1,08	-0,10
Ferrous metals	20,8	2,32	-0,71	0,51	0,24	3,15	0,63
Non-ferrous Metals	27,0	-0,92	-2,11	0,12	-0,25	-1,68	-0,04
Motor Vehicles	23,6	0,60	-16,34	1,59	2,37	5,62	11,14
Other Transp. Equip.	15,7	-4,37	-13,81	0,01	0,19	-4,77	2,58
Electric Equipment	13,6	1,08	0,60	0,58	0,14	1,87	0,16
Machinery	31,0	-4,56	-5,28	0,40	0,60	-3,63	-0,92
Utilities & Construction	124,2	-0,85	-0,25	0,14	0,24	-0,51	0,15
Trade and Services	641,9	0,10	-0,27	-0,07	-0,10	-0,06	-0,06
Total	1286,0	-0,03	-0,21	0,15	0,15	0,09	0,17

***** in bn US$

Judging from a single figure of merit, Table 14 easily ranks the options. Irrespectively whether GDP or EV is used, the competing pairs of scenarios are B *versus* E and A *versus* F. The latter means that China, if on one hand inducing, via its FTA with Mercosul, a trade flows pattern similar to that created by the EU25-Mercosul FTA, on the other hand, in welfare gains, is already competing with a US-Mercosul FTA.

Welfare results – both in plain real GDP variation, or in the more sophisticated *equivalent variation* (EV) computation – are however surprisingly low, for a model including imperfect competition. The explanation probably lies on the fact that most gains, in all agreements, derive from the perfect competition sectors, those in strategic interaction many times suffering a contraction. This is linked to an important policy issue to be developed in the next section.

Table 14: A few figures of merit: Total variations (long run results; percentage from base values (in US$ bn)), for all scenarios.

	Base Values	Scenarios					
		A	B	C	D	E	F
Real GDP	438,1	0,189	0,788	0,163	0,164	0,647	0.298
Welfare (EV)	75,7	0,377	0,482	0,082	0,056	0,630	0.257
Exports *	72,8	11,09	23,52	3,09	2,82	19,41	6,18
Imports *	68,5	12,31	23,40	2,77	2,34	19,86	5,93

* only merchandise trade

5. Mercosul: opportunities and defficiencies.

The fact of simultaneously analysing several integration possibilities provides additional insights on the performance of the "invariant" partner, namely Mercosul. In particular, questions of efficiency and adjustment may be identified in a more consistent way.

It is tempting to divide the respective results in Tables 13 and 12, in order to evaluate the variations in gross labour productivity, by sector, for each agreement; this however is not very informative in the present exercise. The constant total labour closure enhances the absolute value of the changes in this factor, which, as mentioned above, have the same directions as those for output. This implies that, uniformly, productivity *decreases* for a sector where output expands, and *increases* for those that suffer a contraction. Though this can make sense, the fact that it is a consequence of the mechanics of the model makes the productivity analysis less realistic.

The issue of adjustment, called upon in a CGE context by Giordano and Watanuki (2001) and Flôres (2003), remains a major one, especially for a bloc with mixed characteristics like Mercosul. Based on Table 12, we derived a classification of winning (W), neutral (N), conflicting (C) and losing (L) sectors. Neglecting variations less than 1 per cent in absolute value, a sector is defined as

winnng, if all other output variations are positive;

neutral, if no variations outside the 1 per cent range take place;

conflicting, if positive and negative variations appear outside the range;

losing, if all other output variations are negative.

Table 15 shows the result of directly applying the above criteria to data in Table 12. The outcome is informative.

In the worldly competitive groups of Agriculture and Agribusiness, one loser appears, *beverages & tobacco*, due to its contraction in the EU25 FTA. It is worth pointing out that orange juice, a very performing Brazilian export is subsumed in this sector. Also, *oilseeds and soybeans* turns out as a neutral sector.

In the Light Manufactures group the situation is not very encouraging, but for *leather, wood, paper* where a basket of goods from Argentina, Brazil and Uruguay have established market niches, with growth potential. *Textiles & apparel* manages to be a winner, thanks to China, but *other light manufactures* is a total loser. Things get worse in Heavy Manufactures. Three losers – including the *non-ferrous metals* industry, what is both surprising and worrying – and two conflicting cases are found. Out of the latter, the first is more of a winner, but for the strong contraction in the EU25 scenario, and the second more of a loser, if the increase in the China FTA didn't take place. It is worth reminding that the competitive Brazilian middle-sized aircraft are included in this last sector.

Finally, the pattern in the Energy group is faithful to Mercosul's relatively neutral standing in the two aggregate sectors.

It is also important to highlight that, out of the 13 winning sectors, 5 own their classification to only one FTA result: all are in the Agriculture and Agribusiness groups, and the FTA is the one with the EU25 which, as mentioned in section 4, presents perhaps the more distorted – though not uninteresting - result, driven by the opening of the CAP-protected market.

Table 15: A 'Winners and Losers'pattern derived from the total output changes in Table 12.

SECTORS	Winner	Scenarios

	or Loser	A	B	C	D	E	F
Grains	W	-	2,50	-	-	-	-
Vegetables and Fruits	W	-	1,65	-	-	-	-
Oilseeds & Soybeans	N	-	-	-	-	-	-
Sugar	W	1,54	1,28	-	-	1,79	-
Coffee, Rice & Others	W	-	2,19	-	-	-	-
Animal Products	W	-	2,12	-	-	-	-
Bovine Meat	W	-	20,63	-	-	1,54	-
Poultry Meat	W	1,67	23,06	-	-	3,48	-
Dairy Products	W	-	-	1,28	-	1,97	-
Bever. And Tobaccos	L	-	-4,28	-	-	-	-
Vegetable Oils	W	-	8,56	-	-	-	-
Minerals	N	-	-	-	-	-	-
Energy Products	L	-	-1,60	-	-	-	-
Textiles & Apparel	W	-	-	-	-	-	1,52
Leather, Wood, Paper	W	3,81	3,31	-	-	3,97	-
Other Light Manufac.	L	-1,80	-2,71	-	-	-1,96	-6,74
Chemical & Plastics	L	-1,14	-1,96	-	-	-1,08	-
Ferrous metals	W	2,32	-	-	-	3,15	-
Non-ferrous Metals	L	-	-2,11	-	-	-1,68	-
Motor Vehicles	C	-	-16,34	1,59	2,37	5,62	11,14
Other Transp. Equip.	C	-4,37	-13,81	-	-	-4,77	2,58
Electric Equipment	W	1,08	-	-	-	1,87	-
Machinery	L	-4,56	-5,28	-	-	-3,63	-

Summing up the previous analysis, a more nuanced interpretation of Table 15 can be provided:

Mercosul is clearly competitive in the following sectors: *sugar; bovine and poultry meat; dairy products; leather, wood, paper; ferrous metals; electric equipment* and *motor vehicles*; the last one presenting problems in a EU25 FTA;

Mercosul clearly has competitiveness problems in the following sectors: *other light manufactures; chemicals & plastics; non-ferrous metals; other transport equipment* and *machinery;*

For the remaining 10 sectors the bloc is roughly neutral, presenting sometimes *some* competitiveness – 6 sectors – or more of a loser character – 2 sectors; only 2 remaining sectors qualifying as "true neutrals".

Despite the proviso that the aggregation level of the sectoral division blurs a mix of positive and negative situations – some exemplified above -, and the inevitably arbitrary character of our "classification", the final synthesis looks quite reasonable. It lays bare a key defficiency of the bloc, which, unfortunately, is really competitive in a few classical manufactures sectors and selected segments of the agribusiness (plus sugar), i.e., lower value-added activities. All non-competitive areas comprise key industrial sectors.

It is of course not necessarily bad for a bloc to have its trade assets in low value-added sectors. Creativity and upgrading are important tools for improving its terms of trade, as the Brazilian '*sandálias havaianas*' and the Argentine '*dulce de leche*'-based goods show – beyond the persistent upgrading that Mercosul meat exporters are accomplishing -, but clearly this is not enough. As shown by a simple, aggregate CGE exercise, the bloc must seriously consider an industrial adjustment process, to enhance its overall competitiveness and provide it a better insertion in the world value-added chains. Whether this will be pursued through a co-ordinated, internal political will, or forced, in a less planned (and worse) way, via the route of FTAs, is a decision already in the realm of politics.

6. Conclusions.

Summing up the previous results, it seems that the imperfect competition sectors, by keeping the segmented markets strategy, were able – in all scenarios - to practice a kind of reciprocal dumping (*à la* Brander and Krugman (1983)), what partially "saved" them from more drastic outcomes. Indeed, compared with a carefully conducted study like Harrison et al. (2002), our corresponding results are much less dramatic as regards output changes, decreases in these quantities being relatively few or small, even in the full FTAA scenario.

Imperfect competition accounts also for less volatile changes than in the pure perfect competition exercises – where though welfare doesn't vary much, output, imports and exports vary wildly to accommodate the changes in the equilibrium price vector. Nevertheless, welfare changes were somewhat low, signalling perhaps perfect competition effects were still strong. One needed development then is the inclusion of more sectors under imperfect competition, those in the heavy manufactures group being the first natural candidates. Notwithstanding, given the aggregation level of the model, it will not be easy to portray a minimally coherent strategic interaction for some of them, like *chemicals & plastics*.

We point out again that the study focussed mainly on market access for goods. The dynamics of other crucial concessions – regarding, for instance, foreign direct investment – may greatly affect the results here discussed. Moreover, better treatment of the services sector seems mandatory.

Another key issue is rules of origin (RoO). Brenton and Manchin (2002) call attention to the fact that, in 1999, two-thirds of the products eligible to preferences of different forms, which entered the EU from developing countries, did so under the most-favoured-nation (MFN) tariff, thanks to the appallingly cumbersome and costly red tape needed to prove that one complied with the specific RoO. Since at least Hoekman (1993) and Garay and Estevadeordal (1996), specialists have been emphasizing the role played by RoO in concessions and preferential agreements, like the Generalised System of Preferences or the North America Free Trade Agreement (NAFTA). Nevertheless, adequate treatment of RoO in the CGE framework is only beginning, and in fairly debatable ways. The IDB has been making efforts to develop a system that may allow an easier and more systematic way of treating these questions, something to be incorporated in later versions of the model[11].

[11] See, for approaches within the CGE context, Bouët et al. (2003) and Gasiorek et al. (2001), and Garay and Cornejo (2002), as one of the documents related to the IDB efforts.

It is also worth pointing out that an indirect sensitivity analysis has been performed, when contrasting the six sets of FTA results, but this doesn't exclude the need for further investigations in this line.

In qualitative terms, a main message stands out: being a less competitive economy, Mercosul, while facing FTA's with the US or the EU, will be able to reap profits (or welfare gains) in its performing traditional sectors, where, to its competitive advantages, one must add the richness of related natural endowments. In the more modern sectors the situation is not very clear. In general, there will be a domestic contraction, imports will raise and, rather than from a competitiveness effect – which would set the sector in better shape for surviving in the world arena – welfare gains in imperfect competition are mostly due to the sheer reduction in tariffs. This pattern is reasonably serious in the FTAA and in scenario A, but also arises – in a more distorted way - when the US is discarded for the EU25.

The broad finding above raises a flag for the timing of tariff liberalisations or, thinking on the negotiation strategies, for perhaps a Grossman and Helpman (1995) approach of mere sector exclusions in some of the FTAs examined, be it either to appease legitimate internal (sector) fears or to control the development of possibly competitive ones.

Agriculture, which fits into the basic message just highlighted, shows the usually promising figures, both for commodities and the agribusiness, being of interest now to allocate the results among the four members. It is also important because, in our optimistic versions of FTAs, subsidies were disregarded. Given that most production subsidies lie in the CAP, this signals that the EU is an extremely competitive partner, *vis à vis* the US, for a FTA with Mercosul, provided some move in agriculture, beyond tariffs, is made.

From a regional viewpoint, the results showed that South-South agreements, like the one with the AC, can turn out better than expected. Moreover, the signs of China getting closer to the US and the EU25 - in terms of "after FTA" effects – only add to the certainty of its importance in the very near future.

Finally, it is worth reminding the WTO dimension, due to its interrelationships with the final objectives of this study. Indeed, it is somehow ironic that in sectors where the bloc will undoubtedly reap gains in almost any FTA scenario, like *leather, wood, paper* or *textiles & apparel*, and even agriculture in general, multilateral liberalisation will have an impact on these very gains, by enhancing the market access of other competitors, not only underdeveloped ones, but the likes of India, China or other Asiatic countries, not forgetting the US. It is perhaps not too radical to bring back the importance and precedence of multilateral negotiations. Also, given the encompassing character of the FTA proposals here evaluated, in areas like services, where Mercosul in principle lags behind, the multilateral forum seems a better locus for exchanges.

It is undoubtedly important to clinch FTAs, however, negotiations must not be conducted with a short-term perspective; nowadays appealing gains may become vapid conquests even before full implementation of the agreement. Market access concessions and demands must be designed keeping in mind the bloc's global competitiveness and potentialities, as well as the possible outcomes of the different negotiations. Moreover, it is high time for Mercosul to decide whether it will, moved primarily by its internal forces, streamline and upgrade its exports profile, or will let it at the mercy of distinct integration shocks, many not in the desired directions.

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